~~changes [a change] in the measurement value~~ with respect to a reference value;

calculating a time after a said vehicle will have sufficiently traveled after exiting the detection area so as to have substantially no influence on the period of the oscillator signal by

(i) determining the speed of a said vehicle and

(ii) calculating the time after vehicle exit based upon the vehicle speed and a predetermined distance from said detection area at which vehicle travel will not influence said period;

[vehicle exit from the detection area based upon a change in the measurement value during a time period subsequent to entry of the vehicle into the detection area;]

producing a sample measurement value at [based upon the signal after] the calculated time after vehicle exiting [of vehicle exit];

comparing a said reference value and the sample measurement value; and

adjusting the reference value, based upon the ~~comparison.~~

2. (Amended) The method of claim 1 wherein the ~~step of~~ calculating a time ~~of~~ after the vehicle exits from the detection area further comprises the steps of:

determining a time rate of change of inductance of the inductive sensor;

determining a magnitude of change of inductance; and

calculating vehicle speed based upon a predetermined entry distance and ~~the~~ a ratio of the magnitude of change in inductance and the time rate of change [and the magnitude of change of inductance; and

~~calculating the time after vehicle exit based~~ upon the vehicle speed].

3. (Amended) The method of claim 1 wherein ~~adjusting~~ the step in further comprises the steps of the reference value ~~comprises~~:

setting the reference value equal to the sample measurement value if the difference between the reference value and the sample measurement value is greater than a predetermined threshold.

4. (Amended) The method of claim 1 ~~and~~ further comprising the step of:

setting the reference value equal to an average of a plurality of sample measurement values, each measured after a vehicle has exited the ~~detection area.~~

5. (Amended) A method of checking a reference value used in an inductive sensor vehicle detector, which comprises:

measuring frequency of an oscillator signal to produce a measurement value which is a function of inductance of the inductive sensor;

indicating presence of a vehicle if a difference between the measurement value and reference value exceeds a threshold;

measuring vehicle speed of a vehicle passing through a sensor area based upon a rate of frequency change and a magnitude of frequency change of the oscillator signal caused by the vehicle;

determining a time, based upon the vehicle speed, at which the vehicle will have sufficiently travelled after exiting [exited] the sensor area so as to have substantially no influence on the frequency of the oscillator

signal;

taking a sample measurement of the frequency of the oscillator at the time that was determined to be sufficient to allow the vehicle to exit the sensor area; and

adjusting the reference value based upon the sample measurement.

6. (Amended) The method of claim 5 wherein adjusting the reference value comprises:

determining a difference between a first sample measurement value and the reference value;

adjusting the reference value to the first sample measurement value if a difference between them is greater than a predetermined level;

producing [taking] a predetermined number of additional sample measurement values [measurements], each after a vehicle has been determined to have completed a pass through the detection [sensor] area;

comparing the sample measurement values to measurements determine whether the values are within a predetermined range [measurements taken];

averaging the sample measurement values [measurements] to produce an average sample measurement value; and

adjusting the reference value to the average sample measurement value if comparing shows the sample measurement values are within said predetermined range [measurements are consistent with one another].

7. (Amended) In a vehicle detector which senses presence of a vehicle with an inductive sensor, a method comprising:

measuring inductance of a dummy sensor which is unaffected by the presence of a vehicle;

~~comparing a currently measured inductance of the~~ dummy sensor to a previously measured inductance of same dummy sensor; and

determining, based upon the comparison of the currently and previously measured dummy sensor inductances, a change therebetween, and since the inductance thereof is unaffected by vehicles, recognizing ~~a said~~ the change as indicative of an environmental factor unrelated to [whether a change in measured inductance of the inductive sensor is due to a factor which affects inductance of] ~~the inductive sensor.~~

~~8. (Amended) In a vehicle detector of a type~~ in which an inductive sensor changes inductance in response to a vehicle, and in which an oscillator is connected to the inductive sensor to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, a method of identifying a cause of changes in the oscillator signal frequency which are not caused by presence of a vehicle, the method comprising:

connecting the oscillator to a dummy sensor having an inductance which is not affected by vehicles;

measuring the frequency of an oscillator signal while the oscillator is connected to the dummy sensor;

comparing the frequency measured to a previously measured frequency of the dummy sensor; and

determining, based upon the comparing, [whether] a change in the measured frequency, and since the inductance of the dummy sensor is not affected by vehicles, recognizing ~~a said~~ the frequency change as ~~indication of an environmental~~ indicative of a change [frequency when the

~~oscillator is connected to the inductive sensor is due to a change in a factor] unrelated to the inductive sensor.~~ not caused by a vehicle

~~9. (Amended)~~ A method for identifying changes in measured inductance of an inductive sensor used [mechanical difficulties associated] with a vehicle detector which [uses an] inductive sensor [which] changes inductance in response to presence of a said vehicle, but which identified changes are determined not to be caused by vehicles, and are, therefore, caused by mechanical difficulties requiring maintenance, the method comprising:

measuring inductance of the inductive sensor over a plurality of measurement frame segments;

calculating a time rate of change of inductance of the inductive sensor; and

identifying existence of mechanical difficulties when the time rate of change of inductance calculated is in a predetermined range outside a threshold rate of change associated with vehicular movement.

~~10. (Amended) In an inductive sensor system in~~ which an inductive sensor is connected to an oscillator to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, a method of identifying changes in frequency of the oscillator signal which are not produced in normal operation, and are, ~~therefore,~~ caused by mechanical difficulties which require maintenance activity to correct, the method comprising:

measuring a change in frequency of the oscillator signal over each of a plurality of measurement frame segments;

calculating ~~the~~ a rate of frequency change dF/dt of ~~the sensor drive~~ oscillator signal over the plurality of measurement frame segments;

~~determining whether the rate of~~ frequency change dF/dt corresponds to a rate which does not occur during normal operations, and is, therefore, [is] indicative of mechanical difficulties; and

providing a signal indicating existence of mechanical difficulties.

11. (Amended) A method of adjusting a reference value of a vehicle detector which compares a measured value derived from an inductive sensor to a reference value, the method comprising:

calculating a plurality of measurement periods [measurement period];

measuring a change in the measured value during each of said plurality of measurement periods [the measurement period];

comparing the change in each said [the] measured value to a threshold change; and

producing a new reference value based upon an average change in said measured values [the change in measured value] and the threshold change.

12. (Amended) The method of claim 11 wherein the new reference value is produced if the average change in the measured values [value] is less than the threshold change by adding the average change in the measured values [value] to the reference value.

13. (Amended) In a vehicle detector in which an inductive sensor is connected to an oscillator to produce an oscillator signal having a frequency which is a function of inductance of the inductive sensor, and in which presence of a vehicle is determined by comparing a measurement value which is a function of oscillator signal frequency to a reference value; a method of adjusting the ~~reference value of a vehicle detector to reflect slow~~ compensate for drift